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som, and the delicious sweets which they yield are eagerly sought after, all other luxuries are held at a discount. Bees appear to be very fastidious, so to speak, in their tastes; seldom noticing plants of inferior qualities, except as necessity demands.

July 14th. The flowers have all fallen and not a legume, nor the trace of one, from this second flowering is to be seen. During repeated examinations of these secondary clusters, there was observed nothing in the structure of the stamens and pistil of any flower, to prevent self-fertilization, provided they had come to maturity at the same time. There was abundance of pollen in the anthers, and the stigmatic surface of the pistils was open and coated with a viscid secretion. The presence of bees and the development of fruit in a few instances where aided by those insects, associated with the opposite condition, to wit, the absence of bees and the consequent absence of fruit, the flowers being ready but the bees being unwilling, are incontrovertible evidence of the fact that bees are essential to the fertilization of *Wistaria Sinensis*.

BOTANICAL OBSERVATIONS IN SOUTHERN UTAH.

BY DR. C. C. PARRY.

No. 4.

THE following list comprises the collection of plants made in the above district, in the season of 1874.

The numbers given correspond to those affixed to the distributed sets, and referred to in the previous papers. Where no numbers are given the plants named were either scantily collected, or merely observed. In a few instances the unnumbered plants, though belonging to this locality, were derived from other sources as indicated in the text. Where no special locality is given, the valley of the Virgen in the vicinity of St. George is to be inferred. To the notes and descriptions following any particular species furnished by other collaborators, the name of the author is appended.

No. 1. *Anemone decapetala* L. Rocky ledges. April.

No. 2. *Ranunculus Andersonii* Gray, Var., *tenellus* Watson. King's Rep. p. 7, t. 1.

Forming small clumps, with the flowering stems quite constantly branched; Beaver-dam Mts. May.

No. 3. *Delphinium azureum* Michx.

No. 4. *Myosurus aristatus* Benth. Santa Clara. May.

No. 5. *Berberis Fremontii* Torr. Beaver-dam Mts. May.

No. 6. *Arctomecon Californicum* Torr. Fremont's Rep. p. 312, t. 2. Dry gypseous hills on the Virgen. May. Differs from the description and figure above referred to, in its less hairy foliage, 4 (not 6) valved capsule, and white flowers; apparently biennial.

No. 7. *Eschscholtzia Californica* Cham., var. *hypocotyles* Gray.

No. 8. *Platystemon Californicus* Benth. Upper Santa Clara. June. The most eastern locality from which this well known Californian plant has been collected.

No. 9. *Arabis longirostris* Watson. King's Rep. p. 17, t. 2.

No. 10. *Streptanthus cordatus* Nutt. Beaver-dam Mts. May.

No. 11. *Draba cuneifolia* Nutt. Rocky ledges. April.

No. 12. *Capsella divaricata* Walp.

No. 13. *Thysanocarpus curvipes* Hook.

No. 14. *Physaria Newberryi* Gray. Bot. Ives', Rep. p. 6. This species seems to take the place of the more common northern species, *P. didymocarpa* Hook., in all the mountainous districts of Southern Utah.

No. 15. *Biscutella (Dithyrea) Wislizeni* Engel. Sand drifts.

No. 16. *Lepidium integrifolium* Nutt., var. *heterophyllum*. Leaves more or less serrate or pinnatifidly lobed.—The present specimens have the leaves coarsely toothed, in the lowermost somewhat lobed, the upper being entire. No. 122 Watson (*L. montanum*, Var. (?) *alpinum*, King's Rep. p. 29), is a more extreme form with most of the leaves lobed. In every other respect the plant is exactly Nuttall's *L. integrifolium* (51 Vasey; 620 Wolf) which has leaves only few-toothed at the apex or entire. The species is provided with a somewhat woody base and thick leaves, glabrous, the petals conspicuous, capsule ovate to orbicular, marginless or very nearly so. Rocky ridges near Cedar City. July.—S. WATSON.

No. 17. *Lepidium Fremontii* Watson. King's Rep. p. 30, t. 4. Profusely branched from a perennial woody base, forming diffuse globular shaped clumps, 1-2 feet in height, with copious racemes of small white flowers, succeeded by crowded clusters of slender pedicellate, broadly obcordate siliques. The figure above referred to in Watson's Report, taken from an imperfect fragment, does not do justice to this fine well marked species. Abundant on rocky hill sides near St. George, flowering in May.

No. 18. *Lepidium montanum* Nutt.

No. 19. *Lepidium Wrightii* Gray. Siliques more glabrous than in the typical specimens.

No. 20. *Arenaria Fendleri* Gray, Var. *glabrescens* Watson. A much finer plant than the more common northern form and admirably adapted for ornamental rock work.

No. 21. *Stellaria Kingii* Watson King's Rep. p. 39, t. 6, fig. 1-2. Interior basin of Central Utah. July.

No. 22. *Lewisia brachycalyx* Engelm.

No. 23 and 24. *Claytonia perfoliata* Don., Vars. Shaded crevices of Sandstone rocks. Santa Clara. April.

No. 25. *Sphaeralcea Emoryi* Torr.

No. 26. *Malvastrum exile* Gray. Bot. Ives's Rep. p. 8.

No. 27. *Glossopetalon spinescens* Gray. Pl. Wright. Pt. 2, p. 29, t. 12. Beaver-dam Mts. May.

No. 28. *Larrea Mexicana* Moric.

No. 29. *Acer grandidentatum* Nutt.

No. 30. *Vitis Arizonica* n. sp. Young branchlets, leaves and inflorescence densely floccose-tomentose, adult naked or usually (at least on the nerves of the leaves) beset with short hairs; leaves (small) orbiculate, cordate, with a wide (sometimes very broad) sinus, acute, with irregular, sharp, often very pointed, rather small teeth; rarely 3-5-lobed with rounded sinuses; tendrils intermitting,¹ branched; fertile inflorescence

¹ *Intermitting* tendrils we find in those species of *Vitis* where two leaves with opposed tendrils are succeeded by a third leaf without a tendril, and so on in succession:

and bunches of berries shorter than leaf; berries small or middle-sized (2-3½ lines in diameter); seeds mostly 2-3, usually obtuse with a small but prominent chalaza and more or less indistinct raphe. *Vitis æstivalis*, Var? Gray, Pl. Wright, pt. 2, p. 27. Torrey Pac. R. Rep. 7, Bot. p. 9.—Common along the streams of Arizona where it was first collected by the botanists of the Mexican Boundary, and of some of the Pacific Railroad Expeditions; later by Dr. Palmer, who made an especial study of it and gathered numerous specimens in mature fruit; Dr. Parry's collections are from southwestern Utah.

With some hesitation I venture to introduce a new species in this intricate genus, and especially in the *Cordifolia* group; but as this form cannot well be united with any of its allies, it will have to try and stand for itself. The forms belonging to the *Cordifolia* group are distinguished by their more or less entire leaves and small berries; they extend over the whole breadth of the continent from northeast to southwest, and are *V. cordifolia* with larger, broadly dentate, glabrous leaves and smallest berries in larger bunches, raphe usually strongly developed on the top of the seed as a well marked cord; from New England to Missouri, Nebraska and Texas; *V. riparia* with larger, incisely dentate, usually sharply 3-lobed, glabrous leaves, larger berries in small bunches, raphe slightly visible on top of seed; from Canada to the Rocky mountains and to Texas; *V. arizonica* with smaller, broadly cordate, sharply dentate leaves, floccose at first, glabrous afterwards, middle-sized berries in small bunches, raphe more or less indistinct on top of seed; *V. californica* with middle-sized, narrowly cordate, broadly dentate, always tomentose or canescent leaves, small berries in large bunches, raphe invisible on the broad seed; found only on the Pacific slope, from the Sacramento valley southward.

The fruit of *V. arizonica* belongs like that of *V. riparia* to the better class of American grapes; while that of the two others is scarcely edible, this is said to be quite luscious, and will in time no doubt be cultivated, in a warmer climate. Dr. Palmer's seeds have well germinated with me, but the vines perished in the climate of St. Louis, after a lingering existence of several years. The seeds show a remarkable variability in form and markings so as to weaken to some extent their specific value. I find them generally obtuse, but emarginate and even notched on top; the chalaza is small but usually quite prominent and is narrowed upwards into the raphe, which on the top of the seed becomes inconspicuous, or in some instances remains quite prominent.

Dr. Parry's specimens from southwestern Utah are distinguished from all the Arizona specimens I have seen, by having somewhat lobed leaves. Their sterile flowers exhibit the usual form; longer anthers on long straight filaments, which in the bud are inflexed; in the fertile flower-bud the stamens are shorter than the pistil, the filaments straight and scarcely as long as the short anthers, and after fecundation recurved. I could discover no difference in the condition of the pollen of both kinds of flowers. This seems to be the ordinary form of the fertile flowers in our wild species, and in some cultivated ones, while some other stocks bear fertile flowers with long stamens, thus constituting the incompletely polygamous character of our grape-vines; purely pistillate flowers I have never seen, and doubt whether they exist.—DR. G. ENGELMANN.

No. 31. *Krameria parvifolia* Benth.

No. 32. *Polygala subspinoso* Watson. Am. Nat. Vol. vii, p. 299. Cedar City. July.

No. 33. *Vicia exigua* Nutt.

No. 34. *Trifolium Kingii* Watson. King's Rep. p. 59. Intermediate in some respects between *L. Bolanderi* Gray, and *S. Beckwithii* Brewer.

No. 35. *Trifolium eriocephalum* Gray. Sheep range, Cedar City. July.

No. 36 and 38. *Hosackia rigida* Benth, Vars.

No. 37. *Hosackia rigida* Benth.

No. 39. *Hosackia subpinnata* Torr. & Gray.

the ordinary occurrence in all our grape-vines with the exception of *V. Labrusca* and its cultivated varieties; in these the tendrils are *continuous*; i. e., each leaf has a tendril opposed to it; all this only in well-grown canes. This character distinguishes at once all forms of *Vitis Labrusca*. Branched tendrils are found in all our species, with the exception of *V. vulpina*, which bears *simple* tendrils.

No. 40. *Dalea Johnsoni* Watson. King's Rep. p. 64.

No. 41. *Lupinus pusillus* Pursh. An unusually robust and showy form, frequently branching; 4-8 inches high.

No. 42. *Lupinus brevicaulis* Watson. King's Rep. p. 53, t. 7.

No. 43. *Lupinus (Platycarpus) Sileri* Watson. Proc. Am. Acad. vol. x, p. 345. N. sp. Low, caulescent, branching, loosely and softly villous; leaflets 5, oblanceolate 5-8 lines long, acutish, smooth above, shorter than the slender petioles; racemes short, few flowered, on elongated peduncles equalling the leaves; pedicels short, scattered; bracts shorter than the calyx; bractlets linear; calyx-lobes herbaceous, toothed, 3 lines long, the upper a little shorter; petals light-purple, 3-4 lines long; pod 4-5 lines long; seed a line or more broad.

An interesting addition to this section of the genus, distinguished readily from *L. pusillus*, by its more slender habit, softer pubescence, and capitate long-peduncled racemes. Washington Co., S. Utah (A. L. Siler, 1873); Loma on the Rio Grande, S. Colorado (195 Wolf). S. WATSON. Pine valley, S. Utah (Parry 1874).

No. 44. *Astragalus eriocarpus* Watson. King's Rep. p. 71.

No. 45. *Astragalus arrectus* Gray. Beaver-dam Mts. May.

No. 46-49. *Astragalus cyaneus* Gray. Pl. Fendl. p. 34. This species seems to be well distinguished from *A. Shortianus*, to which it has been referred, by the legumes which are broadest near the middle and more or less attenuate into the calyx especially when immature, and by the narrower oblong acutish leaflets. In *A. Shortianus* the wider pod is rounded at base and strictly sessile, the leaves suborbicular, mostly obtuse or retuse, and the pubescence of the calyx not closely appressed as in the other. *A. Shortianus* has been collected in the mountains of Colorado; *A. cyaneus* in New Mexico and Arizona. S. WATSON.

No. 47. *Astragalus atratus* Watson. King's Rep. p. 69, t. 11.

No. 48. *Astragalus diphyus* Gray. Cedar City. July.

No. 50. *Astragalus Nuttallianus* DC. Var. *canescens*.

No. 51. *Astragalus megacarpus* Gray, Var. Cedar City. July.

No. 52. *Astragalus lonchocarpus* Gray. Cedar City. July.

No. 53. *Astragalus Sonora* Gray. Cedar City. July.

No. 54. *Astragalus Kentrophyta* Gray. Cedar City. July.

No. 55. *Oxytropis campestris* L. High mountains near Cedar City. July.

No. 56. *Prunus (Emplectocladus) fasciculata* Gray, Proc. Am. Acad. Vol. x, p. 70. *Emplectocladus fasciculatus*, Torr. Pl. Frem. in Smith's contr. p. 10, t. 5. Abundant on all rocky slopes in the valley of the Virgin; fl. April; fr. June, popularly known in this section as "the wild almond."

No. 57. *Coleogyne ramosissima* Torr. Pl. Frem. in Smith's Contr. p. 8, t. 4. Flowering in May, fruiting in June. A very common shrub on the hills near St. George; foliage deep green; flowers bright yellow, copious. The mature fruit is said to be greedily browsed on by sheep who thrive on it.

No. 58. *Cercocarpus ledifolius* Nutt.

No. 59. *Cercocarpus intricatus*, n. sp. Watson, Proc. Amer. Acad. vol. x, p. 346. (*C. breviflorus* of King's Rep., p. 83, not of Gray). Cedar City. July.

No. 60. *Cowania Mexicana* Don.

No. 61. *Heuchera rubescens* Torr. Stansb. Rep., p. 388, t. 5.

No. 62. *Ribes viscosissimum* Pursh. Pine Valley. June.

No. 63. *Oenothera albicaulis* Nutt., var. (?) *decumbens*. Low, sending out from the base decumbent naked branches; leaves oblong-lanceolate, petioled, sinuate, dentate; common in dry, sandy soil near St. George.—WATSON.

No. 64. *Oenothera Johnsoni* n. sp. Resembling *O. primiveris*, but the flowers large and yellow, and the stigmas elongated. Petals one inch long, the calyx-tube equalling or exceeding the leaves; capsules 9-12 lines long, somewhat 4-angled, strongly nerved, not crested. Common on all dry hills near St. George. Dedicated to I. E. Johnson, Esq.

No. 72. *Oenothera (Chylismia) Parryi*, n. sp. Low, diffusely branched from the base, villous with spreading hairs; stems leafy; leaves ovate to oblong-lanceolate, $\frac{1}{4}$ -1 inch long, sub-sinuately toothed, cuneate or sometimes cordate at base, upon a slender, often

elongated petiole; the slender branches and petioles subtended by small sessile bracts; flowers deep yellow or orange, occasionally spotted with red inside, 3-4 lines broad; calyx-tube $\frac{1}{2}$ line long, narrow, the tips of the lobes not free; capsule smooth, 4-6 lines long, ascending upon the more or less deflexed slender and often elongated pedicel.—Distinguished from any form of *Æ. scapoidea*, by its smaller capsules, more deflexed pedicels, bright yellow flowers and peculiar habit. Abundant in bare gypseous clay hills near St. George; fl. May.—S. WATSON.

No. 73. *Oenothera brevipes* Gray. Very variable in size, from 4 to 18 inches high. Rocky hill-sides near St. George; fl. May.

No. 74. *Oenothera brevipes* Gray, var. *parviflora*. Of a much more branching habit than the preceding; the leaves more distinctly pinnate; inflorescence more slender; flowers pale yellow, the petals 2-3 lines long.—S. WATSON.

No. 75. *Petalonyx Parryi*, n. sp. Gray, Proc. Amer. Acad., vol. x, p. 72. Frutescent, branches leafy up to the condensed spicate heads of flowers; lower leaves oblong or spatulate, entire, sub-sessile, upper ones larger, rhomboid obovate or ovate, crenate, acute at base, short petiolate; lobes of the calyx linear, twice as long as the ovary, a little shorter than the yellow unguiculate petals. Closely resembling *P. nitidus* Watson, of southern Nevada. A low branching suffrutescent plant with copious remains of dead stalks and faded leaves of a pearly white color. Found at only a single locality near St. George; fl. June.

No. 76. *Mentzelia multiflora* Nutt. The common form.

No. 77. *Mentzelia multiflora* Nutt. Var.

No. 78. *Mentzelia multiflora* Nutt. Var. (?). See above page 19.

No. 79. *Mentzelia (Eucnide) urens* Parry. Gray, Proc. Amer. Acad., vol. x, p. 71. Sub-erect, branching, very hispid with stinging bristles intermixed with smaller, many-barbed hairs; leaves orbicular, unequally sub-dentate, penninerved, lower petiolate, upper sessile, partly clasping at the base; peduncles and pedicels short, sub-corymbose; flowers large, petals light yellow, obovate, mucronate, often tipped with a small tuft of hairs, nearly twice as long as the lanceolate lobes of the persistent calyx, deciduous at maturity in a single piece with the very numerous stamens and united filaments forming an internal corona. Sub-pendent from crevices of perpendicular sandstone rocks on the Santa Clara; fl. June.

Mentzelia (Bartonia) tricuspidis n. sp. A span high, rather stout, sparsely hispid with slender, simple bristles, and roughish with the shorter and peculiar pubescence of the group; leaves petioled, oblong-lanceolate, acute or acuminate, sinuately pinnatifid-toothed; flowers very short-peduncled, large; calyx bracteolate, its lanceolate subulate lobes about the length of the turbinate tube, and half the length of the 5 spatulate-obovate, light yellow petals; stamens very numerous, all nearly alike and antheriferous, rather shorter than the calyx; filaments narrowly linear, slightly dilated upwards, white with an orange colored base near the tricuspidate apex, the subulate lateral cusps sterile, and twice the length of the middle one, which bears the oblong-linear anther; style 2-cleft; ovules pretty numerous, apparently in two series on each placenta. Apparently annual, only a single specimen brought by the mail-rider from the desert districts south of St. George. May.—A. GRAY.

No. 80. *Cymopterus purpureus* Watson. AM. NAT., vol. vii, p. 300.

No. 81. *Myrrhis occidentalis* Benth. & Hook. High mountains near Cedar City. July.

No. 82. *Ligusticum scopulorum* Gray. Proc. Am. Acad., vol. vii, p. 347. Elevated sheep ranges of the Wahsatch near Cedar City; July. The remarkable persistence of this species in the locality indicated, where it is found covering extensive tracts to the exclusion of other more nutritious vegetation—one of the few native plants that can maintain and even extend its foothold under the usually destructive agency of sheep grazing—is very suggestive in its bearing on the question of the modifying influence of cultivation and settlement on the native vegetation of any newly occupied district. A somewhat similar condition of things in southern Colorado has lately given rise to actual warfare between sheep and cattle herders, the latter contending that the introduction of sheep and close grazing favors the growth of plants poisonous to cattle.

No. 83. *Peucedanum Newberryi* Watson. AM. NAT., vol. vii, p. 301.

No. 84. *Cymopterus terebinthinus* Torr. & Gray.

- No. 85. *Peucedanum macrocarpum* Nutt.
- No. 86. *Galium acutissimum* Gray. Dry rocky slopes on the Santa Clara.
- . *Galium multiflorum* Kellogg. Mountains near Cedar City.
- No. 87. *Symphoricarpus longiflorus* Gray. Revis. Symph. Jour. Linn. Soc., vol. xiv, p. 12. A slender, intricately branching shrub with small leaves and long slender corolla, white, tinged with pink; 2-3 feet high; abundant among shaded rocks adjoining the Virgin; fl. June.
- No. 88. *Symphoricarpus oreophilus* Gray. Revis. Symph. Jour. Linn. Soc., vol. xiv, p. 12. Mountains near Cedar City. July.
- No. 89. *Brickellia linifolia* D. C. Eaton. King's Rep., p. 137, t. 15. Cedar City. July.
- No. 90. *Brickellia atractylodes* Gray. Proc. Am. Acad., vol. viii, p. 200.
- No. 91. *Aster tortifolius* Gray. Proc. Am. Acad., vol. vii, p. 353. A common, large-flowered, pale blue species, growing in rock-crevices near St. George; fl. May.
- No. 92. *Erigeron Bellidiastrum* Nutt.
- No. 93. *Erigeron stenophyllum*, var. *tetrapleurum* Gray. Very showy with its light blue, copious rayed flowers, growing in crevices of sandstone rocks near St. George; fl. June.
- No. 94. *Townsendia strigosa* Nutt. Cedar City. July.
- No. 95. *Solidago pumila* Nutt. Cedar City. July.
- No. 96. *Acamptopappus sphaerocephalus* Gray. Proc. Am. Acad., vol. viii, p. 634; Torr. in Pacif. R. R. Expl., vol. vii, p. 12, t. 6. Common on dry hills near St. George; fl. June.
- No. 97. *Aplopappus linearifolius* DC. Sandstone rocks on the Santa Clara. May.
- No. 98. *Franseria dumosa* Gray. Abundant near St. George. When in full bloom, in May, the abundant pollen discharged acts as an irritant sternutatory.
- . *Franseria eriocentra* Gray. Proc. Amer. Acad., vol. vii, p. 355. A shrub 3-4 feet high; only late fruiting specimens collected. June.
- No. 99. *Hymenoclea Salsola* Torr. & Gray. Pl. Fremont, in Smith's Contrib., vol. vi, p. 14, t. 8.
- No. 100. *Monoptilon bellidiforme* Torr. & Gray. Journ. Bost. Soc. Nat. Hist., vol. v, p. 106, t. 13. Only before known from a single Fremontian specimen. St. George; fl. May.
- No. 101. *Chaenactis macrantha* D. C. Eaton. King's Rep., p. 171, t. 18.
- No. 102. *Chaenactis steeioides* H. & A. St. George. May.
- No. 103. *Chaenactis carphoclinia* Gray. Bot. Mex. Bound., p. 94.
- No. 104. *Actinolepis lanosa* Gray. Proc. Am. Acad., vol. ix, p. 198, note.
- No. 105. *Actinolepis Wallacei* Gray. Proc. Am. Acad., vol. ix, p. 198, note.
- No. 106. *Syntrichopappus Fremontii* Torr. Pacif. R. R. Rep., vol. iv, p. 106, t. 15.
- No. 107. *Hymenopappus luteus* Nutt. Pine Valley. June.
- No. 108. *Thelesperma subsimplicifolium*, var. *scaposum* Gray. Bot. Mex. Bound., p. Pine Valley. June.
- No. 109. *Thelesperma subnudum* n. sp., Gray. Proc. Am. Acad., vol. x, p. 72. Low, short-leaved from a much divided perennial base; leaves thickened, rigid, 1-2-ternate, segments short, linear-lanceolate or oblanceolate; peduncles simple, scapiform, about a span high, rays none; achenia smooth, surmounted by an obtuse 4-5 toothed naked corona. Cedar City. July.
- No. 110. *Gymnolomia Nuttalli* Gray. Pine Valley. June.
- No. 111. *Actinella Richardsonii* Nutt. Var. (?). Pine Valley. June.
- No. 112. *Layia glandulosa* H. & A. Bot. Beech., p. 358.
- No. 113. *Tessaria borealis* T. & Gr. Pl. Fendl., p. 75; Sitgr. Rep., t. 5.
- No. 114. *Psathyrotes annua* Gray. Pl. Wright, part 2, p. 100.
- No. 115. *Psathyrotes ramosissima* Gray. Proc. Am. Acad., vol. vii, p. 363, note. Upper and lower surface of the leaves scurfy pubescent; the edges of the leaves and petioles closely set with ciliate jointed hairs, looking under a lens like a string of beads. These swollen glandular portions contain the aromatic resinous oil that gives the peculiar heavy odor to all the species of this genus, being most marked in this particular one.
- . *Psathyrotes Schottii* Gray. Proc. Am. Acad., vol. ix, p. 206. A single speci-

men of this well-marked species was brought by the mail-rider from the lower valley of the Virgin.

No. 116. *Baileya pleniradiata* Harv. & Gray. Pl. Fendl., p. 105.

No. 117. *Stylocline micropoides* Gray. Pl. Wright., part 2, p. 84.

No. 118. *Tetradymia spinosa* H. & A.

No. 119. *Tetradymia glabrata* Torr. & Gray. Pacif. R. Rep., vol. ii, p. 122, t. 5. Sevier Valley.

No. 120. *Gaillardia acaulis* n. sp. Gray, Proc. Am. Acad., vol. x, p. 73. Low, perennial, puberulent; leaves much crowded on the thickened caudex, slightly fleshy, ovate, petiolate with undulate or sub-dentate margins; scape naked, less than a span high, monocephalous; involucre shorter than the disk, outer scales ovate-oblong, inner lanceolate, slenderly acuminate; flowers of the ray and disk yellow; chaff of the receptacle short, ovate-subulate; lobes of the disk-flowers triangular-ovate, somewhat obtuse; scales of the pappus 9, ovate-oblong, pointed.—Gypseous clay hills near Cedar City. July.

Nos. 121, 122. *Gaillardia pinnatifida* Torr.

No. 123. *Senecio Douglasii* DC., var. (?).

No. 124. *Artemisia trifida* Nutt. Valley of the Sevier. July.

No. 125. *Dicoria canescens* Torr. & Gray. Bot. Mex. Bound., p. 83, t. 30. Only a few immature plants obtained, showing it to be an annual, apparently flowering in August or September.

No. 126. *Chicus undulatus*, var. *canescens* Gray. Proc. Am. Acad., vol. x, p. 42.

No. 127. *Chicus Arizonicus* Gray. Proc. Am. Acad., vol. x, p. 44. Cedar City. July.

No. 128. *Lygodesmia grandiflora* Torr. & Gray. Gray, Proc. Am. Acad., vol. ix, p. 217, note. Cedar City. July.

No. 129. *Glyptopleura setulosa* Gray. Proc. Am. Acad., vol. ix, p. 211. Biennial; fl. May. See above, AM. NAT., vol. ix, p. 20.

No. 130. *Malacothrix Coulteri* Gray. Proc. Am. Acad., vol. ix, p. 213, note.

No. 131. *Malacothrix sonchoides* Torr. & Gray. Gray, Proc. Am. Acad., vol. ix, p. 214.

——. *Malacothrix platyphylla* Gray. Proc. Am. Acad., vol. ix, p. 214, note. Lower valley of the Virgin; May.

No. 132. *Stephanomeria Thurberi* Gray, var. *nana*. Pl. Thurber, p. 325.

No. 133. *Lygodesmia exigua* Gray. Proc. Am. Acad., vol. ix, p. 217, note; fl. June.

No. 134. *Stephanomeria exigua* Nutt. Torr. & Gray, flora, vol. 2, p. 473.

No. 135. *Troximon aurantiacum* Hook. Fl. Bor.-Am., vol. i, p. 300, t. 104. Pine valley. June.

No. 136. *Calycoseris Wrightii* Gray. Pl. Wright. Part 2, p. 104, t. 14.

No. 137. *Malacothrix Torreyi* Gray. Proc. Am. Acad., vol. ix, p. 213, note; fl. April.

No. 138. *Rafinesquia Neo-Mexicana* Gray. Pl. Wright, part 2, p. 103; fl. April.

No. 139. *Microseris macrochaeta* Gray. Proc. Am. Acad., vol. ix, p. 211, note.

No. 140. *Microseris linearifolia* Gray. Proc. Am. Acad., vol. ix, p. 211, note.

No. 141. *Perezia microcephala* DC. Dry rocky slopes near St. George; 2-3 feet high fl. June.

No. 142. *Encelia Californica* Nutt., var. (?).